It appears that

"The mishap arose from a little want of familiarity with the Russian cartography of these parts, which is naturally better than ours. It turned out that the soundings of the deeper portions were, so to say, in fathoms and the shallower in feet. A few of the deeper soundings having been verified by the lead, the rest were taken for granted, with the unpleasant result already detailed."

Still, in spite of this mishap, everybody working with a will, things were more or less ship-shape on the eclipse morning. There had not been many opportunities of adjustment, but, not unmindful of possibilities, I had taken the precaution of having every portion of the more important instruments adjusted, and each adjustment plainly marked before I sent it off.

Mr. Shackleton obtained twenty-one photographs with the prismatic camera, thirteen during totality, and five of the corona. I have already enlarged and begun to discuss these photographs, and I have seen enough already to be able to say that in my opinion the results obtained are of the highest possible value. In fact, we may almost say that the long-talked-of "flash" has at last been photographed. This brings a test to apply to contending theories, and there will be a good deal to be written about it later on.

It is not too much to say that "the winter of our discontent" at Kiö is turned into "glorious summer" by the sun of Novaya Zemlya!

I must not forget to add that the photographs of the corona, though they are of much lower value from the theoretical point of view, will be very useful in enabling the change in the appearances of the corona from eclipse to eclipse in relation to the sun-spot period, to be chronicled.

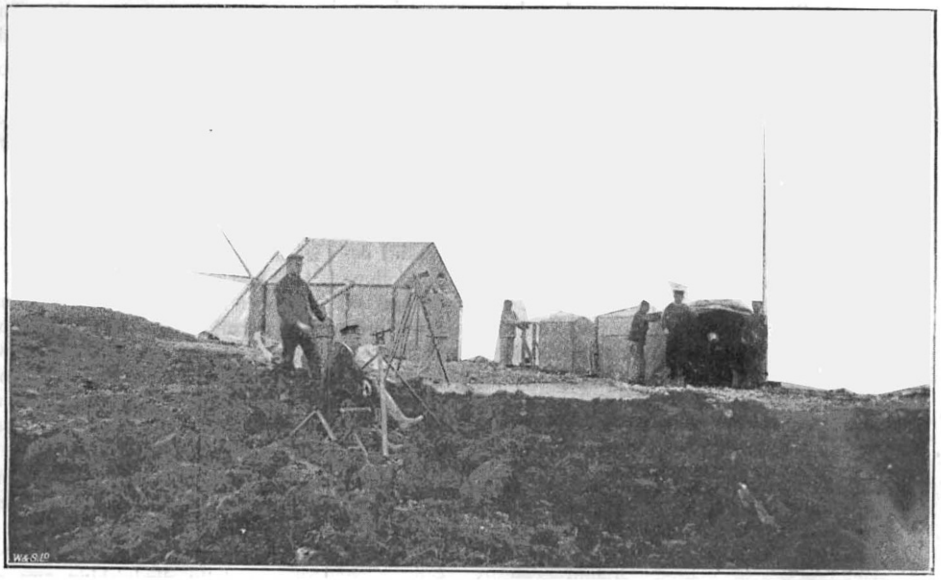

FIG. 12.—Lieut. Martin, R.N., setting up a disc.

The *Yorkshire Daily Post* states that Dr. Stone, who also accompanied Sir George Baden-Powell, has obtained some photographs of spectra.

I must be permitted one other extract from Mr. Shackleton's statement, as it indicates the success of Sir George Baden-Powell's cruise in another direction, and is interesting as an account by an eye-witness of a most interesting event.

"After the eclipse we were busy repacking and getting all on board again. Our intention had been to go to the northern island to see about the safety of some stores which had been left there for Dr. Nansen, but we found it prudent to make direct for Hammerfest. Some of the Russian astronomers were about to make the attempt to cross Novaya Zemlya by means of dogs and sledges. . . ."

"At Hammerfest, on our return, we heard that Dr. Nansen had arrived outside, and as the steamship *Thor* came in and dropped anchor alongside, the intrepid explorer recognised Sir George, whom he knew well, and halloed, 'Hallo, Baden-Powell, is that you? I did'nt expect to see you here.' Our cutter was out, and at once Sir George was rowed off to the *Thor*. Dr. Nansen returned with him immediately, to the disappointment of the Norwegians, who were playing their National Anthem, and making other demonstrations in his honour. This was on Tuesday, the 18th. Mrs. Nansen arrived by express steamer, and the Doctor was very anxious to see her again. When she arrived there was an affecting scene. The reunion proved too much for the feelings of the faithful wife, who fainted away, and did not recover consciousness for a considerable time. Then came redoubled rejoicings. The people of Hammerfest were too much delighted to leave their countryman much opportunity of private happiness, and made a feast in the public hall. Dr. Nansen was very anxious about the *Fram*, though he felt quite confident that she would be coming in. 'It is only,' said he, 'a question of a week or two,' but at the same time he appeared disappointed that she had not preceded him. Our yacht took Nansen on to Tromsö, but I left her at Hammerfest to return by express steamer. The *Fram*, as you will have seen from the papers, turned in near Tromsö. When our steamer reached Tromsö the people there were very much disappointed that we had not brought Nansen back with us. At Bodö we learnt of the receipt of a telegram announcing that the *Fram* had returned, but at first were inclined to treat the news as a joke. It, however, turned out to be correct; so for the second time we hoisted all our flags and bunting in honour of the Arctic exploring party."

Mr. Shackleton is loud in his acknowledgment of the kindness shown him by Sir George and Lady Baden-Powell, and they may, I think, rest assured that the scientific public of these islands, to speak of no wider territory, are grateful to them for their efforts in the cause of science.

J. NORMAN LOCKYER.

NOTES.

THE Sanitary Institute has been holding its Congress at Newcastle-on-Tyne during the past week, and has got through a great deal of work. The Congress was opened on September 2 by the Duke of Cambridge, as President of the Sanitary Institute, after which the inaugural address was delivered by Earl Percy, the President of the Congress.

THE steam-yacht *Windward*, with four members of Mr. Jackson's expedition on board, arrived in the Thames on Saturday. The yacht was the bearer of a voluminous mail from the leader of the expedition, some valuable maps, and several cases of scientific collections. The returned explorers, as was to be expected, had a narrative of the highest interest to relate; but as this has been very fully reported by the daily press, we need do no more than report that Mr. Jackson has been able to confirm some of the more important discoveries of last year, and to produce a map of Franz Josef Land, which for the first time lays down with approximate accuracy its geographical outline, and at the same time entirely alters the previous records. Valuable botanical discoveries are reported to have been made, and numerous photographs taken of birds and beasts of the country in their native habitat and under ordinary conditions.

After an absence of rather more than two years, Dr. Forsyth Major has returned to England from his scientific mission to Madagascar. His task was a very difficult one to perform, in consequence of the unsettled state of the country at the time of his visit, but Dr. Major seems to have succeeded in doing some solid scientific work. The explorer's collections have been deposited in the Natural History Museum, and include many specimens of *Æpyornis* bones from the marshes at Sirabé, and an extensive series of skins representing the recent fauna of the island. A fine collection of specimens of the flora of Madagascar, including four orchids reported to be new to science, has also been made.

Dr. W. R. Gowers will deliver the Bradshaw Lecture at the Royal College of Physicians on November 5. The title of the lecture will be "Subjective Sensations of Sound." The Lumleian lecturer for next year is to be Dr. Bastian, and Dr. Luff will be the Gulstonian lecturer. Prof. Sidney Martin is to deliver the Croonian Lecture in 1898.

According to information brought by the steamer *Quiraing*, a severe earthquake (the severest since 1784, it is said) occurred in Iceland on the evening of August 26 and the following morning. Many farms at Hrepp, on the east coast of Iceland, two churches, and nearly all the farms in Hollum, Laudi, Kangaullum, Hollkrapp and Fgolshlid were destroyed, and sheep and cattle killed. Reykjavik, Bargarfjord and Hrulafjord suffered slightly. No lives seem to have been lost. The centre of the disturbance was apparently Hecla, where an eruption appeared imminent.

A Reuter telegram of September 2, from Yokohama, reported a disastrous earthquake in the north-east provinces of Japan on the evening of August 31. The town of Rokugo was entirely destroyed, and other towns were severely damaged. Many lives were lost. On the same day extensive damage was done in the southern parts of Japan by a typhoon.

The death is announced of Mr. R. W. R. Birch, a hydraulic and sanitary engineer of repute. Mr. Birch had been for many years a member of the Council of the Sanitary Institute, and of the Royal Meteorological Society.

News has come from Annemasse (Haute Savoie) of the death of M. Henri Aimé Résal, the mining engineer. M. Résal, who was the author of numerous books on mining mechanics, was a member of the Academy of Sciences, editor of the *Journal des Mathématiques Pures et Appliquées*, and President of the Société Mathématique de France. He was born in 1828.

The death is recorded, at the age of seventy-three, of Prof. Egli, the geographer, who is perhaps best known for the "Nomina Geographica" which he edited.

The new Gatty Marine Laboratory at St. Andrews, intended to replace the wooden structure in which Prof. McIntosh has worked for the past ten years, is to be formally opened on October 8. Its more noticeable features will be a tank-room 30 feet square, and a research-room of the same dimensions. The latter is being fitted to accommodate six workers.

The fungus foray of the Yorkshire Naturalists' Union, which has now been for several years an annual event, is to take place this year at Selby, from which as a centre excursions are to be made to various woods in the East and West Ridings, on September 19, 20, 21, and 22; the members of the party meeting each evening at the "Londesborough Arms," to compare notes and arrange the fungi gathered. On Monday evening, September 21, a conference will be held, at which papers will be read by Rev. Canon Du Port, Mr. George Massee, Mr. Carleton Rea, and Mr. Harold Wager, and in illustration of their remarks a lantern will be provided by Mr. W. Norwood Cheesman. Mr. A. Clarke will exhibit a number of stereoscopic photographs of fungi, and microscopes will also be provided. Mycologists who may wish to attend will be heartily welcomed, and circulars will be sent on application to Mr. W. Denison Roebuck, Sunnybank, Leeds, or to Mr. W. Norwood Cheesman, The Crescent, Selby.

A block of granite bearing the following inscription has, says the *Academy*, been recently placed on the southern shore of the Lake of Sils in the Engadine:—"In memory of the illustrious English writer and naturalist, Thomas Henry Huxley, who spent many summers at the Kursaal Hotel, Maloja."

It is announced that the Royal Society of Canada has resolved to commemorate the five-hundredth anniversary of the first landing of Cabot in North America by holding a meeting at Halifax from June 20 to 26 of next year, and to erect, at a cost of not less than £200, a monument at Sydney in Cape Breton.

Notice is given in the current number of the *Journal of the Society of Arts* of two prizes offered by the Society. One is the "Fothergill" of £25 and a silver medal, for a paper on "the best means of effectually preventing the leakage of current to earth in electrical installations from generating heat and setting buildings on fire." The paper should consist of about eight thousand words, and be written with a view to being read and discussed at an ordinary meeting of the Society. Papers submitted for the prize must reach the Secretary by October 1 of this year. Each paper must be type-written, and bear a motto, the name of the writer being enclosed in a sealed envelope with a similar motto. The other prize announced is a gold medal and the sum of £20, and is to be bestowed, under the terms of the Benjamin Shaw Trust, "for any discovery, invention, or newly-devised method for obviating or materially diminishing any risk to life, limb, or health, incidental to any industrial occupation, and not previously capable of being so obviated or diminished by any known and practically available means." Descriptions of the inventions of intending competitors must reach the Secretary of the Society of Arts not later than December 31, 1896.

The Sanitary Institute has just issued a list of its twenty-second course of lectures and demonstrations for sanitary officers and students. The course, which is to be commenced on Monday, September 28, by a lecture, by Mr. Wynter Blyth, on "The Education, Status, and Emoluments of Sanitary Inspectors," has been arranged for the special instruction of those desirous of obtaining knowledge of the duties of sanitary officers, and of others desirous of obtaining a practical knowledge of sanitary requirements and regulations. The lectures will be delivered at the Sanitary Institute, London, and the introductory lecture is to be free.

Captain Robertson, of the Dundee whaling vessel *Active*, which has just returned from a voyage to the Arctic regions, has, says the *Times*, forwarded to Mr. Dickson, of Oxford, the result of certain observations made, at the request of the latter, during the cruise, together with samples of the water through which the *Active* sailed. The observations were taken with a view to ascertaining the distribution of food fishes in relation to their physical surroundings; and the samples of water brought home number 130, taken from the sea each day at noon, the surface temperature and other particulars having been noted. It is understood that the results of the inquiries will be communicated to an international congress of men of science interested in this and kindred questions.

AN account of an interesting plant which has the apparent property of turning its leaves in a north and south direction, thus behaving like the needle of a compass, is given in *Garden and Forest*. Mr. E. J. Hill, of Chicago, who seems to have been investigating it, gives the name of the plant as *Silphium lacinatum*, and says that the *Silphium terebinthinaceum* is affected in the same way, seventy-five per cent. of the latter orienting themselves in the manner mentioned above. The tendency to orientation seems to be a function of the ages of the leaves in question, the younger ones being said to point more accurately north and south than those of greater age, the latter falling off and therefore supplying an insufficient amount of evidence. It is mentioned that Sir Joseph Hooker remarked the uses which might be made of the peculiarity of this plant; it is stated, also, that he was able when travelling to note perfectly the change in direction of the train by observing the general appearance of these plants which were scattered over the plain.

IN consequence of the great number of earth movements that occur in Turkey and on the boundary of the Ottoman Empire, the Meteorological Observatory of Constantinople had been charged to make a study of them. The first year's observations were begun on January 1, 1895 and the director, Dr. Agamennone, has given in the *Bulletin* some details of the results obtained. The mean number of movements per day amounted to over two, the total number amounting to 753, and out of these 400 had been observed in Turkey, 236 in Greece, and 56 in Bulgaria. Tabulating these movements in order of their magnitude it is shown that the small ones are the most frequent, amounting to 519. The moderate ones are 225 in number, while the remaining 9 have resulted in large calamities. The importance of this new branch will be demonstrated when the observations extend over a larger period of time, as certain marked indications, which appear to precede large disturbances, will be more fully studied. In this way warnings may be eventually given of disturbances likely to do damage.

The current number of *Kosmos* (No. 606) gives the results obtained by Mr. Eginitis of the velocity of the earth-wave during the earthquake at Constantinople. Employing the method of Dutton and Hayden, he finds that the depth of the centre of disturbance was 34 kilometres, a distance not very different from that obtained by Mr. Lecomte. The velocity of the wave he found to be between 3 and 3·6 kilometres per second, a value equal to that found for the progress of the wave movement in the last earthquake at Locride. Mr. Eginitis reminds us of the seismic period which two years ago affected the eastern part of the Mediterranean, Zante, Thebes, Locride, Constantinople, and Sicily, without mentioning some of the minor movements in Europe and Asia. These countries lie nearly in a straight line.

IN the *Comptes rendus* for August 17, M. Berthelot gives an interesting account of some recent explorations of the copper mines of Sinai, the most ancient workings mentioned in history. These mines were worked by the Egyptians from the time of the third dynasty (about 5000 B.C.), and were abandoned about 3000 years ago owing to the poorness of the deposits and their distance from Egypt proper. The ores consist of turquoises, containing about 3·3 per cent. of oxide of copper, and sandstone impregnated with carbonate and hydrosilicate of copper, the metal forming two or three per cent. of the rock. The minerals were carefully sorted and fused with oxide of iron and carbonate of lime in crucibles made of quartzose sand cemented by clay. The furnaces were built of sandstone, and the fuel used was wood. Both fuel and carbonate of lime must have been brought from some distance. Some of the slags consist largely of $2FeO.SiO_2$, with the addition of crystals of magnetite; others are less basic, and contain lime. It is remarkable that the existing fragments of furnaces and crucibles, the slags and the scoriæ contain the same products, and show the same characteristics as those in modern smelting-works, and that the general method of extracting the metal differed little from that still employed in the treatment of similar ores. At a time when weapons of wood and stone were used by the Egyptians the copper must have been highly prized by them; moreover, the hand-labour of slaves cost little. The continuous working of such poor deposits need not therefore occasion surprise.

THE Vienna correspondent of the *Times* states that an interesting report of its first year's work has just been issued by the Austrian State Institute for the preparation of anti-toxin serum. Of 1100 cases of diphtheria treated with the serum, 970 recovered, a very favourable result compared with the previous mortality. When the remedy was applied on the first and second day of the illness, the percentage of deaths was only 6·7. After the third day, however, the mortality reached 19 per cent., rising to 33 per cent. after the sixth day. Of 318 cases of preventive inoculation only twenty were attacked by the disease, mostly in a mild form, and all recovered.

THE winter session of the medical schools and colleges in the United Kingdom will open at the beginning of next month, and in connection with many of the institutions an address or a lecture will be delivered by a prominent medical man. We glean from the *British Medical Journal* the following information respecting the opening arrangements of most of the schools:—St. Bartholomew's Hospital College session will begin on October 1, when (or on the succeeding day) a dinner of past students will be held in the great hall of the hospital. Charing Cross Medical School will re-open on October 5, on which day, at 4 p.m., Prof. Michael Foster will, as has already been stated in these columns, deliver the first Huxley lecture on "Recent Advances in Science, and their bearing on Medicine and Surgery." At the opening of the St. George's Hospital School, on October 1, an address may be expected from Mr. W. Adams Frost. In the evening of that day the annual dinner of past and present students will take place at the Hôtel Métropole. The winter session of Guy's Hospital Medical School will begin on October 1. The biennial festival dinner of the school will be held the same evening at the Hotel Cecil. The London Hospital Medical College will re-open on October 1, and in the evening the annual dinner will take place in the college library. An introductory address will be given at the opening of the session of St. Mary's Hospital School, on October 1, by Mr. Morton Smale. The school's annual dinner will be held at the Holborn Restaurant on the same day. At the Middlesex Hospital School Dr. W. Essex Wynter will, on October 1, deliver an address, and past and present students and others will meet for dinner at the Café Royal in the evening. At the school in connection with St. Thomas's Hospital the prizes will, on October 2, be distributed by the Lord Justice Lindley, and in the evening former and present students will dine together at the Whitehall Rooms. The session of the Faculty of Medicine of University College will commence on October 1, when Prof. Sidney Martin may be expected to deliver an introductory address. Past and present students will meet for dinner in the evening at the Hotel Cecil. Dr. Wills will deliver an address at the re-opening of the Westminster Hospital Medical School, and the prizes will be subsequently delivered by Archdeacon Furze. The annual dinner will take place in the evening of that day at the Westminster Palace Hotel. Mr. Jonathan Hutchinson will, it is announced, deliver an introductory address at the opening of the session at the Owens College on October 2. At University College, Liverpool, the session will commence on October 1, on which date Sir William O. Priestley will distribute the prizes. Mr. Victor Horsley has consented to open the session of the Medical Department of the Yorkshire College, on October 1, with an introductory address; he will also distribute the prizes. The winter session of the Queen's Faculty of Medicine, Mason College, will commence on October 1; so also will the sessions of the College of Medicine, University of Durham, and the Sheffield School of Medicine. At Durham, the scholarships and prizes will be distributed by the Bishop of Newcastle; and at Sheffield, Sir Henry Littlejohn will deliver an introductory address.

The current issues of the *Lancet* and the *British Medical Journal* are almost wholly devoted to information likely to be of service to those who are students, or who are about to become students, in one or other of the medical schools of this country. The *Chemist and Druggist* for September 5 contains articles and details specially written for the future chemist and druggist.

Mr. Edgar Thurston, Superintendent of the Government Museum, Madras, has, with the assistance of Mr. T. N. Mukerji, prepared a copious index to the valuable "Dictionary of the Economic Products of India," by Dr. G. Watt, a review of which appeared in our columns of November 1, 1894. Those who have to refer from time to time to Dr. Watt's great work will, we have no doubt, be grateful to the compilers of the present volume. It is issued from the office of the Superintendent of Government Printing, Calcutta.

The Sub-Committee charged with the reception of the British Association have done a very excellent work in compiling an interesting handbook to Liverpool and its neighbourhood, entitled "A Scientific Handbook to Liverpool," a work which, though mainly intended for the benefit of those attending the meeting, will possess a considerable value after the meeting is over. We do not know to whom the happy idea originally occurred, but are probably not far wrong in attributing it to Prof. Herdman, who certainly undertook the duties of editing and general arrangement, and has carried them out very happily. The various authors by whom he has been assisted are not only peculiarly qualified to deal with the subjects severally treated, but each has apparently been solicitous to collect a mass of details which will save any one interested in a similar research a great amount of time and trouble. We have only space to give the bare titles of the several chapters; but this is of the less consequence, as the little book, it may be hoped, will find its way into the hands of all intending visitors. Mr. W. H. Picton, able to draw on the work and research of his father, deals with history and antiquities; while Mr. G. H. Morton is responsible for the notes on the geology of the district. Dr. Forbes, of the Liverpool Museum, treats of the vertebrate fauna; Prof. Herdman reserving to himself the marine fauna. Mr. W. E. Sharp and Mr. R. Brown share the entomological and botanical interests. Mr. Plummer gives statistics connected with the climate of Liverpool and Birkenhead; and Dr. Oliver Lodge contributes an article on the Mersey and its tides. The article on the Docks and the principal engineering features of the city is jointly produced by Prof. Hele-Shaw and Mr. Percy Boulnois, the city engineer; while Sir W. Forwood treats of the city's trade and commerce. The history of the chemical industries is entrusted to Dr. Kohn. This list of names amply justifies the remark that each section has been entrusted to the authority best qualified to deal with it. An appendix supplies some useful information concerning the Isle of Man, where it is proposed to hold a subsidiary meeting at the conclusion of the Liverpool meeting properly so called. Five maps are included in the book—a geological map of the district, a biological chart of the Irish Sea, a chart of Liverpool Bay, a geological map of the Isle of Man, and a chart of the sea round the southern extremity of the isle, including the biological station at Port Erin. Such a book cannot but add greatly to the interest of the meeting, and afford much valuable instruction not only to the members of the British Association, but also to the inhabitants of Liverpool, who must have often felt the want of such a handbook. It is issued for the British Association by Messrs. Philip, Liverpool.

In addition to the above-mentioned guide-book, the British Association has issued, also through Messrs. Philip, an "Excursion Guide Book," in which is to be found just the information likely to be of interest and use to those taking part in the numerous outings arranged; and being partly the work of leaders of the excursions, and under the editorship of one of the local secretaries of the meeting, its contents may be thoroughly depended upon.

The additions to the Zoological Society's Gardens during the past week include a Mona Monkey (*Cercopithecus mona*, ♀) from West Africa, presented by Mr. F. Wyville-Thomson; two Garnett's Galagos (*Galago garnetti*) from Mombassa, East Africa, presented by Rear-Admiral Rawson, C.B.; a Brown Capuchin (*Cebus fatuellus*, ♀) from Guiana, presented by Miss Cissie Wade; a Suricate (*Suricata tetradactyla*, ♀) from South Africa, presented by the Rev. Wilfred Fisher; an American Black Bear (*Ursus americanus*, ♂) from Vancouver Island, presented by Lieut. Bryan Godfrey Faussett, R.N.; a Llama (*Lama peruana*, ♂) from Peru, presented by the executors of the late Colonel J. T. North; a Moorish Tortoise (*Testudo mauritanica*), a Chameleon (*Chamæleon vulgaris*) from North Africa, presented by Mrs. Fraser; an Alligator (*Alligator mississippiensis*) from Florida, presented by Mr. Hugh Mytton; a Brown Capuchin (*Cebus fatuellus*, ♀), a —— Bell Bird (*Chasmorhynchus*, sp. inc.) from Guiana, three Painted Terrapins (*Clemmys picta*) from Nova Scotia, deposited; a Long-tailed Glossy Starling (*Lamprotornis æneus*), two Yellow-backed Whydah Birds (*Coliopasser macrurus*, ♂ ♀) from West Africa, purchased.

OUR ASTRONOMICAL COLUMN.

New Comet.—A telegram from Kiel announces the observation of Comet Giacobini on September 4 last, at 8h. 44m. Nice mean time. Its position was then R.A. = 17h. 10m. 30s., Declination = − 7° 29′. The given movement per day is 1·8m. in R.A. and 0′·25 in declination, so that the comet should be looked for soon after sunset, the above position being about 22° due south of α Herculis, making also a very obtuse isosceles triangle with ζ and ν Ophiuchi. Another telegram gives particulars of a second observation of Comet Giacobini at Nice, on September 6, 8h. 26·5m. Its position as observed was R.A. = 17h. 14m. 16s.; Declination = − 7° 49′. The comet is noted as very feeble.

Comet Brooks (1896).—A telegram received from Kiel announces the observation of this comet at Geneva on September 4, at 10h. 0m. It was then in R.A. = 13h. 30m.; Declination = + 55° 40′. This gives a position admirably suited for observation, being about 2° due east of ζ Ursæ Majoris. The motion of the comet is eastward. Another observation of the comet has been made at Lick Observatory. Its position as seen there on September 6, at 11h. 56·5m., was R A. = 13h. 51m. 44s.; Declination = + 55° 25′. The motion per day is 6·5m. in R.A. and 36″ in Declination, the general direction being easterly. No mention is made of the appearance of the comet.

Telegrams to "Astronomischen Nachrichten," No. 3376.—We gather the following information from the current number of the above journal. Prof. Holden, writing from Mount Hamilton, dated August 11, says: "A telegram just received from Schaeberle says that the sky was wholly clouded at his eclipse station in Japan." Mr. Lowell telegraphs from his observatory at Arizona on August 31: "Companion Sirius re-discovered by Dr. See. Angle 219°. Distance 5″·9." Prof.